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ABSTRACT

To prepare students for the Information Age, many developing nations provide courses in computer literacy. While computers can teach more efficiently and effectively than traditional methodologies, developing nations need to be aware of the effect of computer literacy on cultural awareness and cultural literacy. Computers, as language-based devices, can select, amplify, reduce, and even eliminate, elements of a society's culture, because they themselves are influenced by culture. Solutions to this computer-cultural literacy problem include reassessing the role of the teacher in an electronic classroom, examining the rationale behind the use of computer assisted instruction, and using multicultural versions of computer software and hypermedia. (9 references) (Author/DB)

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CULTURAL LITERACY AND COMPUTER LITERACY:

CAUTIONS FOR THE THIRD WORLD

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COMPUTER LITERACY AND CULTURAL LITERACY: CAUTIONS FOR THE THIRD WORLD

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ABSTRACT

To prepare students for the Information Age, many third world nations provide courses in computer literacy. While computers can teach more efficiently and effectively than traditional methodologies, third world nations need to be aware of the effect of computer literacy upon cultural literacy. Admittedly, any technology transfer carries with it dangers to a nation's cultural sovereignty, but educational technology, because of its impact upon all of a nation's future citizens, should be of special concern to the third world. Some computer education experts believe that computers are a neutral technology; however, computers as language-based devices can select, amplify, reduce, and even eliminate, elements of a society's culture. Solutions to the computer- cultural literacy problem include examining the locus of teacher education for computing, reassessing the teacher's role in the computerized classroom, and using multicultural versions of software and hypermedia.

Theme: Vocational Education and Training (transfer of CAL materials across cultural boundaries)

Keywords: computer-based education, computer literacy, cultural literacy, third world, developing nations

Declaration

This paper has not been published previously and is the work of the author, who will be available to present the paper.

Janet J. Palmer, Associate Professor

COMPUTER LITERACY AND CULTURAL LITERACY: CAUTIONS FOR THE THIRD WORLD

Introduction

In today's global village and global economy, nations, including third world nations, realize that their most important resources for the Information Age are "information" and human resources. Consequently, education, especially computer-based education, is viewed by many developing nations as the key to advancing socio-economic development. Such a goal is often expressed by the infusion of computer literacy into the curriculum. Computer literacy in this paper is defined as emphasizing procedural knowledge in the use of hardware and software. Third world nations, however, might not be aware that computers, while increasing student computer literacy, can simultaneously affect national cultural literacy. Cultural literacy is defined as the ability to decode the taken-for-granted nature of cultural patterns (Bowers, 1988:111-112).

Including computers in the curriculum appears reasonable in order to prepare students for the Information Age. Computer-based education can teach more effectively, efficiently, and economically than traditional methodologies (Emerson, 1987:4). Computer educators, however, while acknowledging the advantages of computing, are generally reluctant to admit or even recognize the negative side of the Information Age.

Discussion regarding the broader social implications of educational computing is relatively sparse, especially as it impacts developing nations. Bowers, author of The Cultural

Dimensions of Educational Computing, suggests that educational computing is accepted because of the assumption that individuals must be prepared to process massive amounts of information if they are to make rational decisions in the Information Age. Thus, this assumption makes the computer seem basic to the very continuance of social existence (Bowers, 1988:88-89). The effect of technology upon cultural patterns and values is also discussed by Slamecka who states that, although the industrialized world equates technology with progress, there is reason to believe that information resources have or can have a cultural impact whose importance exceeds its immediate economic attributes (Slamecka, 1985:181).

Cultural Risks of Classroom Computing

Computer technology, as any other technology, carries with it inherent risks for the third world. The issue of inappropriate technology transfer is hardly a new problem to developing nations. However, the almost unquestioned allegiance to the high-tech educational model often prevents otherwise savvy educational leaders from its critical analysis. The basic problem then for third world nations is to weigh the benefits of educational computing against its effect upon their cultural sovereignty. Cultural sovereignty deals with the right of a nation to assert its own identity, preserve its own heritage, and design its own destiny (Palmer, 1988:309). Threats against a nation's cultural sovereignty can be encountered in the use of foreign databases, foreign media, and other effects of "borrowed cultures" upon a nation's culture. Once cultural patterns and

values are eroded and replaced with new ones, it is difficult, if not impossible, to reinstitute the old ways again (Bowers, 1988:121).

Of great importance to the issue of computer- cultural literacy is the fact that even well-known international computer educators can be misinformed or otherwise unaware of the consequences of educational technology. For example, Alfred Bork, an international leader in interactive technololgy states regarding computer-based education, "Cultural differences may be present, but most of these can be taken care of in the translation process" (Bork, 1987:206). To this end, countries such as India and Kuwait have adapted U.S. self-instructional software to local environments--by rewriting it in the native language and adapting its content and presentation to conform with endogenous environments (Slamecka, 1985:182).

Such efforts, however, generally fail to show understanding of the computer as cultural mediator. Bowers claims that regardless of the language used in the software program, computers will mediate the transmission of culture (Bowers, 1988:133). Mere literal translation overlooks the problem that language includes an associative level, which is attached to the culture as a whole--its history, geography, religion, children's stories, literature, technological level, and so on. Such an associative level permeates languages very deeply. In addition to the depth to which culture affects thought expressed in symbolic language, language itself also plays a role in molding thoughts. Thus, differences in culture (or subculture) result

in perceptual differences regarding even use of the very same words (Hofstadter, 1979:377). For example, in the classic simulation, "Oregon Trail" students are asked to make decisions to assist pioneers across the American frontier. Students are told that the pioneers encounter "bandits," actually these were the indigenous people who were defending their land and way of life from foreign invaders. The Oregon Trail simulation exemplifies the role of computers as amplifiers of certain cultural values and reducers or eliminators of others (Bowers, 1988:48-49).

Recognition of the associative level of language and its effect on cognition has been recognized by the director of computer literacy at Randolph-Macon College. Michael G. Wessells stated that students do not understand how the computer can erode cultural sovereignty--cultural patterns and values. Wessells believes that students need to study ways in which computers affect international relations and how they change the way people think about themselves (Turner, 1985).

Additional discussion of the cultural risks of educational computing is addressed by Rateau who states that informatics (computer-related disciplines) is not culturally neutral. He points out that programming languages are largely English based and that all current informatics is a reflection of a certain way of thinking and a certain amount of economic and social organization--the products of a rationalist and Western culture (Rateau, 1981:7).

Bowers also states that computers are not a neutral

technology, not just electronic pencils (Bowers, 1988:85). Because computers are language-based technology, the software programs present to students the cultural perspective of the author-programmer. Bowers states that embedded in educational computing is the Cartesian philosophy of knowledge, that is, knowledge dealing only with the explicit, observable aspects of experience. Bowers also states that software reflects Western thinking, which he labels digital thinking versus nonWestern analogic thinking. In digital thinking, knowledge is represented by the binary digits of 1 and 0. Bowers cites McClintock who expresses this trend to digitize knowledge as "translating the stuff of culture into binary code." Reducing knowledge to the on/off bit process results in the substitution of "information" for knowledge or ideas. When knowledge is reduced to mere information, the tacit-heuristic forms of knowledge including oral history, traditions, customs, and nonverbal behavior tend to be neglected or ignored. Computer-based education then focuses on objectiveness, factualness, and knowledge as universal truth (Bowers, 1988:33-37). Education, however, is generally regarded as more than a mere manipulation of information. Ability to manipulate information, regardless of the power and speed of the computer, is not an educational substitute for cognitive, affective, or psychomotor development of students.

Solutions to the Computer- Cultural Literacy Problem

What then is the solution to the problem of providing third world students with computer literacy without sacrifice of cultural literacy? Educational computing leadership needs to be

asserted by teacher-educators who instruct future or in-service teachers. Where computer education leaders obtain their education also needs to be addressed by the third world. Many such computer educators receive their educations abroad (e.g., U.S. or Europe). Generally such education is imbued with Western philosophy and cultural values presented as the "truth." Third world computer educators might receive more appropriate education from within their native lands or those with similar cultures. In addition, collaboration could be established with foreign-based institutions with curricula that is interdisiplinary and cross-cultural (Bowers, 1988:134-135).

Computer educators need to expand their instruction beyond the procedural to assist future and/or current teachers to expose and make explicit the non-native cultural assumptions embedded in educational software. Otherwise, the cultural perceptions of the software authors will become the ideological framework for the cognitive development of affected students. Concentration on the decison making activities of the software package should not blind teachers and students to the social/cultural elements present in software. Teachers need to be assisted to develop a sense of judgment regarding when to supplement the content of educational software and to screen programs for their "hidden agendas." Teachers should understand that not only the nature of the content but also the manner in which instruction is learned can have a marked effect upon cognitive development. (Bowers, 1988:100).

In addition, to improving the instructional focus in

educating future and/or in-service teachers, new types of software may help to rectify the computer- cultural literacy problem. Hypermedia appears to offer hope for aiding students to think in accordance with their own cultural patterns and values rather than with those of the software programmer-author. Such hypermedia programs as Apple's HyperCard and IBM's Linkway, allows students to explore a database of information which may contain text, video, sound, etc., in accordance with their own thinking patterns. Such capability is made possible because hypermedia software contains embedded Artificial Intelligence. The publication of multicultural versions of software, according to B.J. Luskin, President of American Interactive Media Inc., is yet another possibility to help solve the computer- cultural literacy problem. Luskin stated that technology has no geographic bounds but that successful software will be intercontinental and have multi-cultural versions (Luskin, 1987:11).

CONCLUSION

Solving the dilemma of computer literacy versus cultural literacy is a signficant issue for third world nations because of the vast population involved as well as the threat to the cultural heritage of nations. In no way should the problems associated with computer- cultural literacy result in the omission of computers from the curriculum of third world nations. However, the substitution of digital information for ideas with the accompanying selection, amplification, or reduction of other forms of knowedge by the computer needs to be recognized and

ameliorated by third world educators. Teacher-educators need instruction with a cross-cultural perspective to transfer to future and in-service teachers a balanced philosophy of educational methodologies between textbooks, computers, and other printed matter with nonprinted materials such as oral histories, storytelling, and epic narrations of dominant and minority cultures. Most importantly, computer educators must not limit themselves to sole concern with computer literacy. Educational technology needs to be viewed as yet another facet of the curriculum requiring the exercise of professional judgment by educators (Bowers, 1988:83). With such precautions, students in the third world will be able to acquire appropriate information skills as well as retain their cultural heritage.

END NOTES

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